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RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/098,514DATE: 08/12/2002
TIME: 15:01:01Input Set : A:\PTO.VSK.txt
Output Set: N:\CRF4\08122002\J098514.raw

3 <110> APPLICANT: Chang, Sandra P
 4 Christopher, David A
 5 Vine, Benjamin
 6 Su, Wei-Wen
 7 Bugos, Robert
 9 <120> TITLE OF INVENTION: PLASMODIUM FALCIPARUM MEROZOITE SURFACE PROTEIN-1 MALARIA
 PRODUCED IN
 10 TRANSGENIC PLANTS
 12 <130> FILE REFERENCE: A-71339/RFT/TAL/NBC
 14 <140> CURRENT APPLICATION NUMBER: US 10/098,514
 C--> 15 <141> CURRENT FILING DATE: 2002-08-06
 17 <150> PRIOR APPLICATION NUMBER: US 09/500,376
 18 <151> PRIOR FILING DATE: 2000-02-08
 20 <150> PRIOR APPLICATION NUMBER: US 60/274,599
 21 <151> PRIOR FILING DATE: 2001-03-09
 23 <160> NUMBER OF SEQ ID NOS: 19
 25 <170> SOFTWARE: PatentIn version 3.1
 27 <210> SEQ ID NO: 1
 28 <211> LENGTH: 1149
 29 <212> TYPE: DNA
 30 <213> ORGANISM: Artificial sequence
 32 <220> FEATURE:
 33 <223> OTHER INFORMATION: synthetic
 35 <220> FEATURE:
 36 <221> NAME/KEY: sig_peptide
 37 <222> LOCATION: (1)..(24)
 38 <223> OTHER INFORMATION:
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 46 aatatttca cgttcaacct caacctaatt gacatcctca actcgcgcct caagaagcga 180
 48 aaataacttcc tcgacgtgtt ggaatccgac ctatgcaat tcaaggcacat tagctctaac 240
 50 gagtagatca tagaggacag cttcaagctc ttgaattcag aacagaagaa caccctccta 300
 52 aagtccata aatacattaa ggagtctgtt gagaacgaca tcaagttcgc ccaggaagga 360
 54 attagctact atgagaaaagt cctggctaaa tacaaggacg acttggaaag cattaagaag 420
 56 gtaatcaaag aagagaagga aaagttcccg agtctccac ccacaactcc cccatcgccct 480
 58 gcaaagaccc acgagcagaa aaaagaaaagt aagttcccttc cattcctcac caacatcgaa 540
 60 actctatata acaaccttgt gaacaagatt gatgactact taatcaactt gaaggcgaaa 600
 62 attaatgact gtaacgtcga aaaggatgaa gcccacgtt agatcaccaa gcttccgat 660
 64 ctcaaagcca tcgacgataa gattgacgtt ttaagaacc acaacgattt cgacgcaatc 720
 66 aaaaagttga tcaacgacga tactaagaaa gacatgctt gaaaactgct gtcgacaggc 780
 68 ttgtccaaa acttcccgaa caccattata agcaagctga tcgaaggaaa gtttcaggat 840
 70 atgctgaaca tctctcagca tcaatgcgtg aagaagcaat gtcccgagaa ttccaggttgc 900
 72 ttccgcccact tagacgaaag ggaggaatgt aatgcctgc tgaattataa acaggaagga 960

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74 gacaagtgcg tagagaatcc taacccaacc tggtaacgaaa ataacggtgg ctgcgatgtc 1020
 76 gacgctaagt gtaccgagga ggacagcggt tccaaatggca agaaaataac ttgcgaatgc 1080
 78 acgaagcccg atagttacc c tctttcgac ggtatcttc gctcccatga tgagctttaa 1140
 80 gagctcacc 1149
 83 <210> SEQ ID NO: 2
 84 <211> LENGTH: 383
 85 <212> TYPE: PRT
 86 <213> ORGANISM: Artificial sequence
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 89 <223> OTHER INFORMATION: synthetic
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 92 <221> NAME/KEY: MISC_FEATURE
 93 <222> LOCATION: (380)..(380)
 94 <223> OTHER INFORMATION: "Xaa" at position 380 represents a stop codon
 97 <400> SEQUENCE: 2
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 100 1 5 10 15
 103 Asn Glu Tyr Asp Val Ile Tyr Leu Lys Pro Leu Ala Gly Val Tyr Arg
 104 20 25 30
 107 Ser Leu Lys Lys Gln Ile Glu Lys Asn Ile Phe Thr Phe Asn Leu Asn
 108 35 40 45
 111 Leu Asn Asp Ile Leu Asn Ser Arg Leu Lys Lys Arg Lys Tyr Phe Leu
 112 50 55 60
 115 Asp Val Leu Glu Ser Asp Leu Met Gln Phe Lys Lys His Ile Ser Ser Asn
 116 65 70 75 80
 119 Glu Tyr Ile Ile Glu Asp Ser Phe Lys Leu Leu Asn Ser Glu Gln Lys
 120 85 90 95
 123 Asn Thr Leu Leu Lys Ser Tyr Lys Tyr Ile Lys Glu Ser Val Glu Asn
 124 100 105 110
 127 Asp Ile Lys Phe Ala Gln Glu Gly Ile Ser Tyr Tyr Glu Lys Val Leu
 128 115 120 125
 131 Ala Lys Tyr Lys Asp Asp Leu Glu Ser Ile Lys Lys Val Ile Lys Glu
 132 130 135 140
 135 Glu Lys Glu Lys Phe Pro Ser Ser Pro Pro Thr Pro Pro Ser Pro
 136 145 150 155 160
 139 Ala Lys Thr Asp Glu Gln Lys Lys Glu Ser Lys Phe Leu Pro Phe Leu
 140 165 170 175
 143 Thr Asn Ile Glu Thr Leu Tyr Asn Asn Leu Val Asn Lys Ile Asp Asp
 144 180 185 190
 147 Tyr Leu Ile Asn Leu Lys Ala Lys Ile Asn Asp Cys Asn Val Glu Lys
 148 195 200 205
 151 Asp Glu Ala His Val Lys Ile Thr Lys Leu Ser Asp Leu Lys Ala Ile
 152 210 215 220
 155 Asp Asp Lys Ile Asp Leu Phe Lys Asn His Asn Asp Phe Asp Ala Ile
 156 225 230 235 240
 159 Lys Lys Leu Ile Asn Asp Asp Thr Lys Lys Asp Met Leu Gly Lys Leu
 160 245 250 255
 163 Leu Ser Thr Gly Leu Val Gln Asn Phe Pro Asn Thr Ile Ile Ser Lys
 164 260 265 270

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167	Leu	Ile	Glu	Gly	Lys	Phe	Gln	Asp	Met	Leu	Asn	Ile	Ser	Gln	His	Gln
168		275				280				285						
171	Cys	Val	Lys	Lys	Gln	Cys	Pro	Glu	Asn	Ser	Gly	Cys	Phe	Arg	His	Leu
172		290				295				300						
175	Asp	Glu	Arg	Glu	Glu	Cys	Lys	Cys	Leu	Leu	Asn	Tyr	Lys	Gln	Glu	Gly
176	305				310				315						320	
179	Asp	Lys	Cys	Val	Glu	Asn	Pro	Asn	Pro	Thr	Cys	Asn	Glu	Asn	Asn	Gly
180					325				330						335	
183	Gly	Cys	Asp	Ala	Asp	Ala	Lys	Cys	Thr	Glu	Glu	Asp	Ser	Gly	Ser	Asn
184					340				345						350	
187	Gly	Lys	Lys	Ile	Thr	Cys	Glu	Cys	Thr	Lys	Pro	Asp	Ser	Tyr	Pro	Leu
188					355				360						365	
W-->	191	Phe	Asp	Gly	Ile	Phe	Cys	Ser	His	Asp	Glu	Leu	Xaa	Glu	Leu	Thr
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214	aatattttca	cgttcaacct	caacctaaat	gacatcctca	actcgccct	caagaaggcga										180
216	aaataacttcc	tcgacgtgtt	ggaatccgac	cttatgcaat	tcaagcacat	tagctctaac										240
218	gagtagatca	tagaggacag	cttcaagctc	ttgaatttcg	aacagaagaa	caccctccta										300
220	aagtccatac	aatacattaa	ggagtcgtt	gagaacgaca	tcaagttcgc	ccaggaagga										360
222	attagctact	atgagaaaat	cctggctaaa	tacaaggacg	acttggaaag	cattaagaag										420
224	gtatatcaaag	aagagaagga	aaagtttccg	agctctccac	ccacaactcc	cccatcgcc										480
226	gcaaaagaccg	acgagcagaa	aaaagaaaat	aagttcccttc	cattcctcac	caacatcgaa										540
228	actctatata	acaaccttgt	gaacaagatt	gtatgactact	taatcaactt	gaaggcgaaa										600
230	attatgtact	gtaacgtcga	aaaggatgaa	gcccacgtt	agatcaccaa	gctttccgat										660
232	ctcaaagcca	tcgacgataa	gattgacctg	ttttaagaacc	acaacgattt	cgacgcaatc										720
234	aaaaagttga	tcaacgacga	tactaagaaa	gacatgctt	gaaaactgct	gtcgacaggc										780
236	ttgttccaaa	acttcccggaa	caccattata	agcaagctga	tgcaggaaa	gtttcaggat										840
238	atgctgaaca	tctctcagca	tcaatgcgt	aagaagcaat	gtcccgagaa	tgcagggttgc										900
240	ttccgcccact	tagacgaaaag	ggagggatgt	aaatgcctgc	tgaattataa	acaggaagga										960
242	gacaagtgcg	tagagaatcc	taacccaacc	tgtAACGAAA	ataacgttgg	ctgcgtatgc										1020
244	gacgctaagt	gtaccggagga	ggacacgggt	tccaatggca	agaaaataac	ttgcgaatgc										1080
246	acgaagcccc	atagttaccc	tctttcgcac	ggtatcttct	gctccatga	tgagctttaa										1140
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252	<211>	LENGTH:	383													
253	<212>	TYPE:	PRT													
254	<213>	ORGANISM:	Artificial sequence													

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256 <220> FEATURE:
257 <223> OTHER INFORMATION: synthetic
259 <220> FEATURE:
260 <221> NAME/KEY: MISC_FEATURE
261 <222> LOCATION: (380)..(380)
262 <223> OTHER INFORMATION: "Xaa" at position 380 represents a stop codon
265 <400> SEQUENCE: 4
267 Arg Ile Gln Gly Asp Ile Thr Met Asp Asn Ile Leu Ser Gly Phe Glu
268 1 5 10 15
271 Asn Glu Tyr Asp Val Ile Tyr Leu Lys Pro Leu Ala Gly Val Tyr Arg
272 20 25 30
275 Ser Leu Lys Lys Gln Ile Glu Lys Asn Ile Phe Thr Phe Asn Leu Asn
276 35 40 45
279 Leu Asn Asp Ile Leu Asn Ser Arg Leu Lys Lys Arg Lys Tyr Phe Leu
280 50 55 60
283 Asp Val Leu Glu Ser Asp Leu Met Gln Phe Lys His Ile Ser Ser Asn
284 65 70 75 80
287 Glu Tyr Ile Ile Glu Asp Ser Phe Lys Leu Leu Asn Ser Glu Gln Lys
288 85 90 95
291 Asn Thr Leu Leu Lys Ser Tyr Lys Tyr Ile Lys Glu Ser Val Glu Asn
292 100 105 110
295 Asp Ile Lys Phe Ala Gln Glu Gly Ile Ser Tyr Tyr Glu Lys Val Leu
296 115 120 125
299 Ala Lys Tyr Lys Asp Asp Leu Glu Ser Ile Lys Lys Val Ile Lys Glu
300 130 135 140
303 Glu Lys Glu Lys Phe Pro Ser Ser Pro Pro Thr Thr Pro Pro Ser Pro
304 145 150 155 160
307 Ala Lys Thr Asp Glu Gln Lys Lys Glu Ser Lys Phe Leu Pro Phe Leu
308 165 170 175
311 Thr Asn Ile Glu Thr Leu Tyr Asn Asn Leu Val Asn Lys Ile Asp Asp
312 180 185 190
315 Tyr Leu Ile Asn Leu Lys Ala Lys Ile Asn Asp Cys Asn Val Glu Lys
316 195 200 205
319 Asp Glu Ala His Val Lys Ile Thr Lys Leu Ser Asp Leu Lys Ala Ile
320 210 215 220
323 Asp Asp Lys Ile Asp Leu Phe Lys Asn His Asn Asp Phe Asp Ala Ile
324 225 230 235 240
327 Lys Lys Leu Ile Asn Asp Asp Thr Lys Lys Asp Met Leu Gly Lys Leu
328 245 250 255
331 Leu Ser Thr Gly Leu Val Gln Asn Phe Pro Asn Thr Ile Ile Ser Lys
332 260 265 270
335 Leu Ile Glu Gly Lys Phe Gln Asp Met Leu Asn Ile Ser Gln His Gln
336 275 280 285
339 Cys Val Lys Lys Gln Cys Pro Glu Asn Ser Gly Cys Phe Arg His Leu
340 290 295 300
343 Asp Glu Arg Glu Glu Cys Lys Cys Leu Leu Asn Tyr Lys Gln Glu Gly
344 305 310 315 320
347 Asp Lys Cys Val Glu Asn Pro Asn Pro Thr Cys Asn Glu Asn Asn Gly
348 325 330 335

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Input Set : A:\PTO.VSK.txt
 Output Set: N:\CRF4\08122002\J098514.raw

351 Gly Cys Asp Ala Asp Ala Lys Cys Thr Glu Glu Asp Ser Gly Ser Asn	
352 340 345 350	
355 Gly Lys Lys Ile Thr Cys Glu Cys Thr Lys Pro Asp Ser Tyr Pro Leu	
356 355 360 365	
W--> 359 Phe Asp Gly Ile Phe Cys Ser His Asp Glu Leu Xaa Glu Leu Thr	
360 370 375 380	
363 <210> SEQ ID NO: 5	
364 <211> LENGTH: 38	
365 <212> TYPE: DNA	
366 <213> ORGANISM: Artificial sequence	
368 <220> FEATURE:	
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375 <210> SEQ ID NO: 6	
376 <211> LENGTH: 42	
377 <212> TYPE: DNA	
378 <213> ORGANISM: Artificial sequence	
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387 <210> SEQ ID NO: 7	
388 <211> LENGTH: 28	
389 <212> TYPE: DNA	
390 <213> ORGANISM: Artificial sequence	
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399 <210> SEQ ID NO: 8	
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407 <400> SEQUENCE: 8	
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412 <211> LENGTH: 24	
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414 <213> ORGANISM: Artificial sequence	
416 <220> FEATURE:	
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424 <211> LENGTH: 42	
425 <212> TYPE: DNA	

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 08/12/2002
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Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:2; Xaa Pos. 380
Seq#:4; Xaa Pos. 380

VERIFICATION SUMMARY DATE: 08/12/2002
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Input Set : A:\PTO.VSK.txt
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L:15 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:191 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:368
L:359 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:368